

## PATENT ABSTRACTS OF JAPAN

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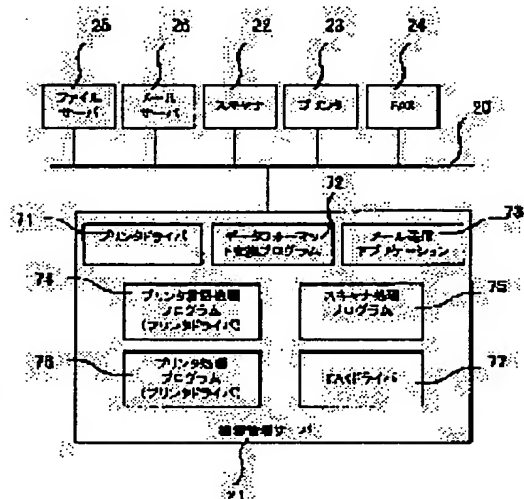
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## (54) DEVICE FUNCTION CHANGING METHOD, NETWORK CONNECTION DEVICE AND DEVICE MANAGEMENT SERVER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To reduce load on client terminal devices and to effectively use the devices by changing the device functions with no replacement of ROMs contained in the devices.

**SOLUTION:** In regard to a device management server 21 connected to a network 20 and network connection devices such as a scanner 22, a printer 23, a facsimile equipment 24, etc., functions and destinations are displayed at display parts of these network connection devices. A user selects the data and functions via an input part to download from the server 21 a processing program that is accordant with a user's application form, a printer driver 71, a data format conversion program 72, a mail transmission application 73, etc., and to store them in the storage parts of the network connection devices. In such a constitution, the device functions can be changed with no replacement of ROMs which are contained in the devices.



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CLAIMS

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[Claim(s)]

[Claim 1] The device functional change method characterized by downloading the processing program doubled with the use form of the user of each equipment from the device management server to terminals, such as a scanner connected to the network, a printer, or facsimile apparatus.

[Claim 2] It is the method of changing a device function by downloading the processing program doubled with the use form of the user of each equipment from the device management server connected to the network to the scanner connected to this network. Where a printer is chosen as a transmission place of scanning data with the aforementioned scanner The printer driver of the selected printer is downloaded from a device management server to the aforementioned scanner. The device functional change method characterized by changing into printer data the scanning data obtained by reading a manuscript with the aforementioned scanner using the downloaded aforementioned printer driver, and transmitting them to the aforementioned printer.

[Claim 3] It is the method of changing a device function by downloading the processing program doubled with the use form of the user of each equipment from the device management server connected to the network to the scanner connected to this network. Where a file server is chosen as a transmission place of scanning data with the aforementioned scanner The file format saved at the selected file server is chosen. The data-format-conversion processing program to the selected file format is downloaded from a device management server to the aforementioned scanner. The device functional change method characterized by changing the scanning data obtained by reading a manuscript with the aforementioned scanner into the file format chosen using the downloaded aforementioned data-format-conversion processing program, and transmitting them to the aforementioned file server.

[Claim 4] It is the method of changing a device function by downloading the processing program doubled with the use gestalt of the user of each equipment from the device management server connected to the network to the scanner connected to this network. Where a mail server is chosen as a transmission place of scanning data with the aforementioned scanner The mail transmitting program transmitted to the selected mail server is downloaded from a device management server to the aforementioned scanner. The device functional change method characterized by transmitting the scanning data obtained by reading a manuscript with the aforementioned scanner to a mail server using the downloaded mail transmitting program.

[Claim 5] The device functional change method according to claim 1 characterized by choosing the printer language of the aforementioned printer and downloading the processing program of the selected printer language from a device management server to the aforementioned printer when the printer is connected to the network.

[Claim 6] The device functional change method characterized by changing a device function by downloading the processing program doubled with a user's use form to the facsimile apparatus connected to this network from the device management server connected to the network.

[Claim 7] The device functional change method according to claim 6 characterized by downloading a scanner ability processing program from a device management server to the aforementioned facsimile apparatus where the scanner ability for using facsimile apparatus as a scanner is chosen.

[Claim 8] The device functional change method according to claim 6 characterized by downloading a printer ability processing program from a device management server to the aforementioned facsimile apparatus where the printer ability for using facsimile apparatus as a printer is chosen.

[Claim 9] The network connection device characterized by having a means to be able to connect with a network with a device management server, and to operate a device, a means to display the contents of operation, and a means to download the user interface processing program doubled with the function from a device management server.

[Claim 10] The device management server characterized by having a means to download the address data which could connect to the network with the network connection device, and were set by the transmission

place to a network connection device.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the device functional change method which can change the function of a device, a network connection device, and a device management server.

[0002]

[Description of the Prior Art] In recent years, OA equipment, such as a scanner, a printer, and facsimile apparatus, is connected to a network, and it has come to be used. The usage of network connection devices, such as the conventional scanner, a printer, and facsimile apparatus, is shown in drawing 3.

[0003] As shown in drawing 3, a scanner 2, a printer 3, facsimile apparatus 4, and the client terminal 5 (personal computer) are connected to the network 1. In drawing 3, when printing the image data read with the scanner 2 by the printer 3, scanning data are first acquired from a scanner 2 using the image-processing application 7 and the scanner driver 10 at the client terminal 5. Then, it prints to a printer 3.

[0004] When the scanning data outputted from a scanner 2 are appended to mail and it transmits to a mail server 13, or when saving to a file server 14 and transmitting to facsimile apparatus 4, application is chosen and performed at the client terminal 5. When using a printer 3, it changes into print data using the printer driver 11 for the printers, and printing is performed.

[0005]

[Problem(s) to be Solved by the Invention] By the conventional method, you have to perform by the client terminal 5 side as mentioned above using the application doubled with the use gestalt of a device. Therefore, the load to the client terminal 5 is large, and since data go via the client terminal 5, processing becomes slow. Moreover, by the device, exchange of ROM was required to be able to use only the processing program fixed from the beginning, but change the content of processing of a device.

[0006] this invention is changing the function of a device, without exchanging ROM in a device, mitigates the burden to a client terminal and aims at offering the device functional change method, network connection device, and device management server which enable a deployment of a device.

[0007]

[Means for Solving the Problem] this invention can download the processing program doubled with a user's use gestalt from the device management server to network connection devices, such as a scanner, a printer, and facsimile apparatus, and, thereby, can change the function of a scanner, a printer, and a facsimile apparatus device.

[0008]

[Embodiments of the Invention] Invention of this invention according to claim 1 is the device functional change method characterized by downloading the processing program doubled with the use gestalt of the user of each equipment from the device management server, and it can change the function of a device into terminals, such as a scanner connected to the network, a printer, or facsimile apparatus, easily, without exchanging ROM on which the processing program in a device is recorded.

[0009] Invention of this invention according to claim 2 is the method of changing a device function by downloading the processing program doubled with the use gestalt of the user of each equipment from the device management server connected to the network to the scanner connected to this network. Where a printer is chosen as a transmission place of scanning data with a scanner The printer driver of the selected printer is downloaded from a device management server to a scanner. It is the device functional change method characterized by changing into printer data using the printer driver which downloaded the scanning data obtained by reading a manuscript with a scanner, and transmitting to a printer. by this composition Direct print data can be transmitted to the target printer from a scanner.

[0010] Invention of this invention according to claim 3 is the method of changing a device function by downloading the processing program doubled with the use gestalt of the user of each equipment from the device management server connected to the network to the scanner connected to this network. Where a file server is chosen as a transmission place of scanning data with a scanner The file format saved at the

selected file server is chosen. The data-format-conversion processing program to the selected file format is downloaded from a device management server to a scanner. The scanning data obtained by reading a manuscript with a scanner It is the device functional change method characterized by changing into the file format chosen using the downloaded data-format-conversion processing program, and transmitting to a file server. by this composition A direct transfer and preservation are attained from a scanner with the file format which he wishes to a file server.

[0011] Invention of this invention according to claim 4 is the method of changing a device function by downloading the processing program doubled with the use gestalt of the user of each equipment from the device management server connected to the network to the scanner connected to this network. Where a mail server is chosen as a transmission place of scanning data with a scanner The mail transmitting program transmitted to the selected mail server is downloaded from a device management server to a scanner. It is the device functional change method characterized by transmitting the scanning data obtained by reading a manuscript with a scanner to a mail server using the downloaded mail transmitting program. by this composition It becomes possible from a scanner to transmit direct scanning data as mail.

[0012] Invention of this invention according to claim 5 is a method according to claim 1, when the printer is connected to the network, is the device functional change method characterized by choosing the printer language of the aforementioned printer and downloading the processing program of the selected printer language from a device management server to the aforementioned printer, and can change easily the printer language processed by the printer by this composition.

[0013] By downloading the processing program doubled with a user's use gestalt to the facsimile apparatus connected to this network from the device management server connected to the network, invention of this invention according to claim 6 is the device functional change method characterized by changing a device function, and becomes possible [ using facsimile apparatus as single functional equipments, such as a scanner and a printer, ] by this composition.

[0014] It is connectable with a network with a device management server, and invention of this invention according to claim 9 is a network connection device characterized by having a means to operate a device, a means to display the contents of operation, and a means to download the user interface processing program doubled with the function from a device management server, and can save the memory for the user interface processing program in a device by this composition.

[0015] It is connectable with a network with a network connection device, and invention of this invention according to claim 10 is a device management server characterized by having a means to download the address data set by the transmission place to a network connection device, and can save the memory for the address data in a device by this composition.

[0016] The gestalt of operation of this invention of a claim 1 to the claim 9 is explained using drawing 2 from drawing 1 below.

[0017] (Gestalt 1 of operation) Drawing 1 is the block diagram showing the composition and the network (LAN) of a device management server in the gestalt of this operation. 20 is the network (LAN) laid within the enclosure. 21 is a device management server and has connected with a network 20. The device management server 21 holds the information and processing program of each device. As for a scanner and 23, 22 is [ a printer and 24 ] facsimile apparatus. Moreover, 25 is a file server and 26 is a mail server. These scanners 22, a printer 23, facsimile apparatus 24, the file server 25, and the mail server 26 are connected to the network 20, respectively. Hereafter, these scanners 22, a printer 23, facsimile apparatus 24, a file server 25, and a mail server 26 are named generically, and it considers as a network connection device.

[0018] Drawing 2 shows the internal configuration view of a scanner 22, a printer 23, and the network connection device of facsimile apparatus 24 grade. In drawing 2, 51 is the input section with a user able to input operating procedure and data. 52 is a display, and when displaying possible processing etc. on a user, it is displayed on this display 52. 53 is a control section and is performed by this control section 53 also about the kind of data, or judgment of operation. The processing section in which 54 processes data etc., and 55 are the storage sections which memorize a program and data. 56 is the communications department which transmits and receives data through \*\* new media, such as a network and a general public line.

[0019] A display 52 displays the device in which each possible processing and possible use are possible. A control section 53 judges the contents that a user inputs the processing which wants to use and perform the input section 51, or receives the information on the processing transmitted from a network 20 to perform based on the display.

[0020] It judges whether the control section 53 which judged the content of processing has a processing program required in a device. The case where there is no required processing program, and in the case of the processing program which is not the optimal, a control section 53 transmits the demand which downloads a required processing program through a network 20 at the device management server 21

from the communications department 56.

[0021] The device management server 21 has the composition that a processing program etc. is manageable inside, and the device management server 21 which received the demand of download from the device transmits the processing program required of the device which published the demand. The communications department 56 notifies having received data from the network to a control section 53.

[0022] If it judges that the control section 53 which received the notice is the processing program which the received contents of data required, the storage section 55 will be made to memorize the processing program, and it will notify to the processing section 54 that the processing is performed. The processing section 54 which received the notice can perform a processing program, and can perform conversion and required processing of data.

[0023] (Gestalt 2 of operation) The scanner 22 connected to the network is explained hereafter. Two or more terminals connected to the network 20 as a transmission place of the read image data can be displayed on the display 52 of a scanner 22. Here, let the terminal chosen as a transmission place be a printer 23.

[0024] A user chooses a printer 23 as a printer of a transmission place by the input section 51 from two or more printers currently displayed. If the selected device judges it as a printer 23, as for a control section 53, a required printer driver will judge whether it is installed in the device by the printer 23, as for a control section 53. When there is no printer driver 71 for printer 23 in a scanner 22, a control section 53 performs the demand which downloads the printer driver for printer 23. The communications department 56 which received the notice of the demand transmits a message so that the printer driver 71 for printer 23 may be downloaded to the device management server 21.

[0025] The device management server 21 which received the message transmits the printer driver 71 for printer 23 to a scanner 22. With the scanner 22 which the printer driver 71 for printer 23 downloaded, the downloaded printer driver 71 for printer 23 is performed by the processing section 54. The processing section 54 changes into printer data the scanning data read with the scanner 22 using the printer driver 71 for printer 23. After this transform processing is completed, the processing section 54 notifies that transform processing was completed to a control section 53.

[0026] It is required for the communications department 56 that the control section 53 which received the notice should communicate the changed data to a printer 23. The communications department 56 which received the demand can transmit the changed data to the printer 23 which is a transmission place directly. It becomes possible to transmit to a printer 23, without minding PC (personal computer), and to print directly the scanning data which this read.

[0027] (Gestalt 3 of operation) Out of the terminal shown in the display 52 of a scanner 22, if a user chooses a file server 25 by the input section 51, it will display on a display 52 in which data format form a control section 53 saves scanning data at a file server 25 again. The data format form for reading and saving the information on the data format form which the user chose data format form from the data format form displayed on the display 52 using the input section 51, or was acquired through the network 20 and to save is determined.

[0028] Selection of the data format form saved at the file server 25 which saves data, and a file server 25 judges whether a control section 53 has the conversion program which changes data format form in a device. When there is no conversion program which changes data format form, or in not being the optimal transform-processing program, a control section 53 performs the demand which downloads the data-format-conversion processing program 72 required for data conversion.

[0029] As the communications department 56 which received the notice of the demand transmits the data-format-conversion processing program 72 to the device management server 21, it transmits a message from a scanner 22. A message is transmitted so that the directory information on the file server 25 chosen simultaneously may also be acquired. The device management server 21 which received the message transmits the required data-format-conversion processing program 72 to a scanner 22. Moreover, the directory information on a file server 25 is also transmitted to a scanner 22.

[0030] The processing section 54 performs the data-format-conversion processing program 72 and the data-format-conversion processing program 73 downloaded with the scanner 22 which the directory information on a file server 25 downloaded.

[0031] The processing section 54 changes the scanning data in a scanner 22 into the data format form chosen using the data-format-conversion processing program 72. After this transform processing is completed, the processing section 54 notifies that transform processing was completed to a control section 53. At this time, the acquired directory information is displayed on a user using a display 52, and a user chooses to which directory scanning data are saved using the input section 51 from the lists of displays.

[0032] It is required for the communications department 56 that the control section 53 which received the notice which had it chosen whether it would save to the directory of file server 25 throat, and the notice which transform processing ended should communicate to the file server 25 which had changed scanning data chosen. The communications department 56 which received the Request to Send gives the

information whether it saves in the place of the scanning data which carried out the data format conversion, and file server 25 throat, and transmits to the file server 25 which is a transmission place. It is possible to save directly to the directory wished to have in a file server 25 in data format form that this wishes to have scanning data.

[0033] (Gestalt 4 of operation) A user is able to choose a mail server 26 by the input section 51 from the devices shown in \*\*\*\* 52 of a scanner 22. If a mail server 26 is chosen, a control section 53 will perform demand processing which downloads the mail transmitting application 73 to the device management server 21. The communications department 56 which received this demand transmits a message from a scanner 22 so that the mail transmitting application 73 may be downloaded to the device management server 21. The device management server 21 which received the message transmits the mail transmitting application 73 to a scanner 22. With the scanner 22 which the mail transmitting application 73 downloaded, downloaded mail transmitting application 73 is performed by the processing section 54.

[0034] \*\* [ execution of the mail transmitting application 73 / develop / a display 52 / the address book of mail ] A user chooses the address of a transmission place from the address list of this display 52 using the input section 51. If a control section 53 judges that the transmission place was specified, scanning data will be appended to mail and the destination address information specified further will be added to mail. After this processing is completed, a control section 53 informs the communications department 56 that mail transmission is carried out. The communications department 56 which received this notice performs mail transmission at a specification place. It becomes possible to transmit to the destination which wishes to have scanning data using an E-mail by this directly.

[0035] (Form 5 of operation) The printer 23 connected to the network is explained hereafter. When print data have been transmitted, or when it has a printer language specified by the user, a printer 23 judges the kind of printer language with which the control section 53 was chosen in the kind and the input section 51 of print data, and performs demand processing which downloads the required printer language processor (printer driver) 74.

[0036] The communications department 56 which received this demand transmits a message to the device management server 21 from a printer 23 so that the required printer language processor 74 may be downloaded. The device management server 21 which received the message transmits the printer language processor 74 specified by the printer 23 to a printer 25. By the printer 23 which the printer language processor downloaded, the downloaded printer language processor 74 is performed by the processing section 54. It becomes possible to process the print data described in various kinds of printer languages by one printer by this.

[0037] (Form 6 of operation) The facsimile apparatus 24 connected to the network is explained hereafter. It is displayed on the display 52 of facsimile apparatus 24 as the scanner ability and printer ability other than a general facsimile apparatus function.

[0038] If a user chooses scanner ability using the input section 51, a control section 53 will judge the selected item and a control section 53 will perform demand processing which downloads the scanner processing program 75 using the communications department 56. The communications department 56 which received the notice of the demand processing transmits a message so that the scanner processing program 75 may be downloaded to the device management server 21.

[0039] The device management server 21 which received the message transmits the scanner processing program 75 to facsimile apparatus 24. In the facsimile apparatus 24 which the scanner processing program 75 downloaded, the downloaded scanner processing program 75 is performed by the processing section 54. If this scanner processing program 75 is performed, only the scanning function of document data can be used using the scanner section of facsimile apparatus 24. The data furthermore scanned are transmitted using first half transmitting processing facilities other than facsimile apparatus transmission, or it becomes possible to save.

[0040] Moreover, if a user chooses printer ability using the input section 51, a control section 53 will judge the selected item and a control section 53 will perform demand processing which downloads a printer processing program using the communications department 56. The communications department 56 which received the notice of the demand processing transmits a message so that the printer processing program (printer driver) 76 may be downloaded to the device management server 21.

[0041] The device management server 21 which received the message transmits the printer processing program 76 to facsimile apparatus 24. In the facsimile apparatus 24 which the printer processing program 76 downloaded, the downloaded printer processing program 76 is performed by the processing section 54. If this printer processing program 76 is performed, the printer data described in the printer language which is except the data format of facsimile apparatus using the printing section of facsimile apparatus 24 can be printed.

[0042]

[Effect of the Invention] According to this invention, by giving the composition which downloads the address data containing the user interface for every function of a functional processing program and a



transmission place to devices, such as a scanner, a printer, and facsimile apparatus, from a device management server, a server is not needed for every devices, such as a scanner, but it becomes possible to make the burden of a client terminal mitigate so that clearly from the above explanation. Moreover, the memory for saving each processing program and address data can be saved. Since a function can be changed without furthermore exchanging ROM of a device, the advantageous effect that a device can be used effectively is acquired.

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**DESCRIPTION OF DRAWINGS**

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[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the composition and the network of a device management server in the gestalt of operation of this invention

[Drawing 2] The schematic diagram showing the internal configuration of the network connection device in the gestalt of operation of this invention

[Drawing 3] The block diagram showing the conventional network

[Description of Notations]

20 Network

21 Device Management Server

22 Scanner

23 Printer

24 Facsimile Apparatus

25 File Server

26 Mail Server

51 Input Section

52 Display

53 Control Section

54 Processing Section

55 Storage Section

56 Communications Department

71 Printer Driver

72 Data-Format-Conversion Program

73 Mail Application

74 Printer Language Processor

75 Scanner Processing Program

76 Printer Processing Program

77 Facsimile Apparatus Driver

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